

SECRET

NPIC/TSG-074/70

02 NOV 1970

MEMORANDUM FOR: Director, National Photographic
Interpretation Center

SUBJECT : Request for Approval of Funds for a Contract
with [redacted] for Support
at a Cost [redacted] from FY-1971 R&D Funds

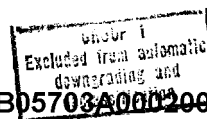
25X1
25X1

1. This memorandum requests approval for the commitment of funds for an R&D contract. The specific request is stated in Paragraph 8.

2. To minimize the technical risks associated with R&D projects involving photographic materials and processes, the Exploratory Laboratory needs to obtain low cost feasibility assessments of new concepts and techniques prior to undertaking costly, formal investigations. Frequently the Laboratory must make decisions involving broadly diversified projects in highly specialized disciplines which lie outside the "main stream" of Center operations. For example:

- a. We are engaged in determining the characteristics of the dry silver, free radical, RS, Dylux, and diazo materials and forecasting their applications. Knowledge of the chemical and physical mechanisms which underlie and distinguish these materials is basic to meaningful assessments of their future potential in exploitation technology.
- b. Our investigation of chemical image manipulation, as an adjunct to digital and optical techniques, requires knowledge of obscure, nonstandard photographic effects and the processes by which they can be applied in order to facilitate photointerpretation.
- c. The acquisition of an electron microscope requires the training of Laboratory personnel in its operation and in techniques for investigating the characteristics of images produced by non-silver/heat processed photographic systems.

SECRET



SECRET

Approved For Release 2004/03/26 : CIA-RDP78B05703A000200030009-2

25X1
25X1
SUBJECT: Request for Approval of Funds for a Contract
[redacted] for Support
at a [redacted] from FY-1971 R&D Funds

- d. Needs involving highly specialized knowledge or skills arise in support of Center requirements; these include, state-of-the-art surveys, laboratory tests, chemical analyses, training in advanced theory and techniques, and general consulting services.

Requirements of this sort frequently transcend the capabilities and available time of ATB's small staff. Contractor services provide an efficient means of temporarily expanding the staff's technical and physical capabilities. In this way, we gain short-term access to experts who, on the basis of continuing need, could not be justified as full-time additions to the staff; expand the breadth and depth of science and instrumentation that can be applied to Center problems; and increase the staff's technical awareness through association with experts. We also realize quicker reaction time, compared with the Laboratory developing the necessary expertise "from scratch," and avoid accumulating "white elephant" equipment in-house as an aftermath of one-time feasibility tests.

3. The proposed program is aimed at acquiring professional study and laboratory technical services in the specialized areas of chemistry and physics related to photoscience. A start at filling this need was made in the closing weeks of FY-70 with the execution of [redacted]

25X1
25X1
[redacted] Under this program, we posed problems to [redacted] and received brief proposals describing approach, cost, and delivery. Six work orders were authorized under FY-70 funding:

- a. Chemistry of Non-Silver Halide Photo Systems - This project identified the chemical and physical mechanisms by which the Dry Silver and RS unconventional systems work. It supports an in-house forecast of future potentials for unconventional materials (RED/RSB) and a contract for building data bases in these materials (Info Tech - RED/ATB).
- b. Oil Analysis - Chemical analysis of cooling oil that turned green in 940 light tables indicated that copper and nickel were causes of detrimental coloration. This knowledge supported the recommendation that the oil be changed regularly to avoid the problem in the remaining 940 tables. This project supported a TSG/ESD requirement.

SECRET

~~SECRET~~

SUBJECT: Request for Approval of Funds for a Contract
[redacted] for Support
at a Cost of [redacted] from FY-1971 R&D Funds

25X1

- 25X1
- c. Novel Chemical Processing - This project employs time lapse photography to capture the transient contrast changes that an image undergoes from start to finish in development. This is an attempt to "freeze" into a single time-based photograph that unique contrast level which promotes the greatest interpretability. This project supports the chemical image manipulation program (RED/ATB and APSD).
 - d. Contrast Multiplication - This is a feasibility assessment of a literature-reported printer which enhances contrast by passing a light beam through a negative several (up to 7) times. We want to learn if a combination of such printing and chemical edge enhancement will yield useful prints from incorrectly exposed ON's. This supports the chemical image manipulation program (RED/ATB and APSD).
 - e. Dyed Imagery - This is an attempt to manipulate contrast by converting black-and-white silver imagery to color imagery by chemical reaction then viewing the result in monochromatic or white light. This supports the chemical image manipulation program (RED/ATB and APSD).
 - f. Electron Microscopy - Applications of scanning electron microscopy (SEM), having a unique capability which combines high magnification with great depth of field, are demonstrating near-breakthrough impact in several technical areas. This is an exploratory project to gain insight into SEM's potential application to photointerpretation. This project is intended to build a potential new base of technology for viewing imagery (RED/ATB).
4. The work orders completed to date (a. and b. above) were highly satisfactory and hold promise of a productive

~~SECRET~~

SECRET

Approved For Release 2004/03/26 : CIA-RDP78B05703A000200030009-2

SUBJECT: Request for Approval of Funds for a Contract
[redacted] for Support
at a Cost of \$ [redacted] from FY-1971 R&D Funds

association with this contractor. The proposed FY-71 program will be patterned after that of FY-70 with tasks being, in part, continuations of those present programs which merit further investigation. Sure to be continued are the projects on chemistry--with emphasis on the unconventional, free radical systems, scanning electron microscopy, and chemical image manipulation. Additional objectives will originate in FY-71 as new technology comes to our attention, or as new problems are thrust upon the Laboratory for solution. Contractor services will be available to all Center components, and the Laboratory will assist where necessary in framing requirements to effect maximum technical communication with the contractor. [redacted] proposes that the program be continued at the same level-of-effort of 1000 man-hours for 12 months. We feel that we insure against the above-average risk normally associated with feasibility-type projects by this tightly controlled, low-budget work order system in which concepts under evaluation must prove themselves before receiving consideration for more extensive development.

5. [redacted] is the recommended, sole source contractor because this program is a continuation of one from FY-70. Their performance to date has been highly satisfactory. [redacted] was selected for the initial FY-70 contract after a competitive source evaluation in which a major factor was its background in Photoscience, specifically its pioneering work on Xerography. Other--if less dramatic--successes have also been realized in graphic arts, and silver halide, diazo and unconventional photo processes. [redacted] presents an experienced staff, extensive library facilities, and an enviable array of sophisticated chemical-physical instrumentation.

6. Successful completion of this program could result in a request to continue this program in FY-72 at about the same level-of-effort. Should an individual task result dictate a need for a significant follow-on, this will be handled as a separate project which may or may not be performed

SECRET

Approved For Release 2004/03/26 : CIA-RDP78B05703A000200030009-2

~~SECRET~~

SUBJECT: Request for Approval of Funds for a Contract
[redacted] for Support
at a Cost of [redacted] from FY-1971 R&D Funds

7. [redacted] will be Project Officer
for this contract. [redacted] is appropriate for
this work; the Project Officer will assign security classifi-
cations to specific tasks and resultant end items.

8. It is requested that approval be granted to negoti-
ate a contract with [redacted] to conduct
the program described at a cost not to exceed [redacted] from
Category V FY-1971 R&D Funds.

[redacted]
Chief, Technical Services Group
NPIC

Attachments:

1. Proposal
2. Form 2420

APPROVED: _____

ARTHUR C. LUNDAHL
Director

National Photographic Interpretation Center

Date

Distribution:

- Original - NPIC/SS/SC&PB (After approval)
1 - NPIC/ODir
2 - NPIC/TSG

5
~~SECRET~~